

Tennessee Pollution Prevention Partnership Success Story



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HAP Free Formulations Enhance Operations

The Member

Marvin Windows and Doors of Ripley is a family-owned business with corporate offices located in Warroad, MN. The Ripley facility was opened in 1980 and has grown to 680 associates primarily on the day shift. When you visit the Marvin W&D Ripley facility, you find a certain type of individual: independent, hard working and strong in character and conviction. It's certainly why some of Marvin's greatest innovations come from their employees. At this location, Marvin produces a high-end door product, including the "storm plus" designed to meet severe weather codes, for residential and commercial applications. Each door assembly is built to order and promptly shipped on Marvin's own fleet and with no finished goods inventory maintained in a warehouse. At Marvin's Ripley facility Continuous Improvement tools are extensively utilized to be the "best in class" and every job is performed one way: right. For the past four years, the Marvin Ripley facility has been a TOSHA STAR facility under the Voluntary Protection Program and wants to be known as a great place to work and the employer of choice in Ripley. This dedication may never make Marvin the biggest window and door manufacturer in the world but we believe it makes us the best.

The Story

The goal at Marvin's Ripley facility is to produce no hazardous waste and to be HAP free. For the past two years, the facility has been a Conditionally Exempt Small Quantity Generator (CESQG) due largely to a few extremely challenging finishing operations, which have been constantly under review. Many options have been explored and evaluated prior to conducting the successful test series which is leading the way to further reduce Hazardous Air

Pollutants (HAPs) at Marvin's Ripley facility. A polyurethane material previously utilized in manufacturing is water-based but still contains HAPs. Extensive consecutive tests conducted on alternative water-based polyurethane that is HAP-free have now proven successful, so the facility has phased out the old polyurethane and begun utilizing the HAP-free formulation.

The Success

We have eliminated materials with hazardous air pollutants in the following areas. In our flow coating area we used a water-based urethane with diethylamide .086 lbs/gal. This material has been replaced with Diamond Vogel VLX15685-01 HAP-free urethane coating product. The urethane is applied with a flow-coating machine that was designed by Marvin's engineering team and does not spray the coating. Unused coating is re-circulated and reused in the process, resulting in waste reduction. In our Displays department, we were using a white paint with 2-(2-butoxyethoxy) ethanol, .42lbs/gal, and dibutyl phthalate, .31 lbs/gal. This material has been eliminated. We are gleaning a \$5,000/year savings from these process enhancements.

The Pollution Prevented

Overall reduction from these changes equates to approximately 300 lbs/year of HAPs. Every small reduction helps the environment. We review every chemical we use for environmental impact, as well as safety and productivity or cost improvement. The changes made as the result of this project have taken hazardous materials out of the environment, making Marvin W&D Ripley facility a safer workplace and the air in the area cleaner.

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